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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/762,985	01/21/2004	G. Paul Koning	3721.1004-005 (EQLC-P01-0)	5999
21005 7590 05/25/2011 HAMILTON, BROOK, SMITH & REYNOLDS, P.C. 530 VIRGINIA ROAD P.O. BOX 9133 CONCORD, MA 01742-9133				
EXAMINER				
NANO, SARGON N				
ART UNIT		PAPER NUMBER		
2457				
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/762,985

Applicant(s)

KONING ET AL.

Examiner

SARGON NANO

Art Unit

2457

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 March 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-8,10,11 and 13-30 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-8,10,11,13-30 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-945)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 5/19/2011
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

1. This action is responsive to RCE filed on March 30, 2011. Claims 1 and 3 are amended. Claims 2, 9 and 12 are cancelled. Claims 1, 3-8, 10, 11 and 13-30 are pending examination.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114 was filed in this application after a decision by the Board of Patent Appeals and Interferences, but before the filing of a Notice of Appeal to the Court of Appeals for the Federal Circuit or the commencement of a civil action. Since this application is eligible for continued examination under 37 CFR 1.114 and the fee set forth in 37 CFR 1.17(e) has been timely paid, the appeal has been withdrawn pursuant to 37 CFR 1.114 and prosecution in this application has been reopened pursuant to 37 CFR 1.114. Applicant's submission filed on March 30, 2011 has been entered.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim1-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over O'Neil et al. U. S. Patent No. 6,128,279 (referred to hereafter as O'Neil) in view of Bright et al U.S. Patent Pub. No 2003/0120723 (referred to hereafter as Bright).

O'Neil teaches a system which distributes requests among a plurality of network servers (see abstract).

As to claim 1, O'Neil teaches a system for managing a set of connections between a plurality of clients and a plurality of storage servers based on load comprising:

a plurality of storage servers having a set of resources thereon, each server further comprising:

at least one connection of the set of connections being a client communication connection from the storage server to at least one client (see col.3, lines 17-21 and col.4, lines 1-9, O'Neil discloses a server receives a request);

a storage device for providing at least one storage , such that a first resource is located on a storage device associated with a first storage server of the plurality of storage servers, and such that a second resource is located on a storage device associated with a second storage server of the plurality of storage servers (see col. col.5, lines 19-32 and col.7, lines 30 – 37, O'Neil discloses multiple servers that capable of retrieving data associated with said server in response to requests, and each server processes requests either locally or rerouted to another server on a network);

a load monitor process connected to communicate with other load monitor processes on at least one server of the plurality of storage servers for generating a measure of overall system load, and for generating a measure of client load on each of the plurality storage of servers (see col. 3 lines 17- 47 and fig.3, O'Neil discloses a plurality of servers which directly handle load balancing using operating capacity levels), and

a client connection distribution process, responsive to the load monitor process, and capable of repartitioning the set of connections for distributing client load by moving the at least one client communication connection from the first server to the second server (see col. 4 lines 1 – 9, O'Neil discloses that a server determines whether to process a request or reroute the request to a different server on a network). O'Neil teaches the invention as mentioned above. O'Neil does not explicitly teach a volume partitioned across plurality of servers and a portion of given resource.

However, Bright teaches a system and method for distributing network data storage that includes receiving a data set from a client, defining a device to include a plurality of device portions each on one of the plurality of network servers (see abstract). Moreover, Bright teaches a system for implementing data storage retrieval that includes a plurality of servers each running RAID server application. The servers communicate with clients via a first network and with each other (see Bright paragraphs 0022, 0085-0086 and fig.5, Bright discloses portions of files stored on multiple servers).

It would have been obvious to one of the ordinary skill in the art, at the time of the invention to incorporate the teaching of Bright into those of O'Neil's to make system more efficient by allowing faster retrieval of data using load balancing technique and ensuring that any one server does not become unduly burdened.

As to claim 3, O'Neil-Bright teaches a system according to claim 1, further comprising a load distribution process for determining resource loads when moving clients among storage servers (see col.4 lines 1-21).

As to claim 4, O'Neil-Bright teaches a system according to claim 1, further comprising: a client allocation process for causing a client to communicate with a selected one of said plurality of servers (see col. 4 lines 22 - 36).

As to claim 5, O'Neil-Bright teaches a system according to claim 1, further comprising: a client allocation process for distributing incoming client requests across said plurality of servers (see col. 4 lines 22 - 36).

As to claim 6, O'Neil-Bright teaches a system according to claim 2, wherein the client distribution process includes a round robin distribution process (see col.1 lines 42- 54).

As to claim 7, O'Neil-Bright teaches a system according to claim 2, wherein the client distribution process includes a client redirection process (see col. 4 lines 1- 9).

As to claim 8, O'Neil-Bright teaches a system according to claim 2, wherein the client distribution process includes a disconnect process for dynamically disconnecting a client from a first server and reconnecting to a second server (see col. 4 lines 1 - 9).

As to claim 10, O'Neil-Bright teaches a system according to claim 1, further comprising: an adaptive client distribution process for distributing clients across the plurality of servers as a function of dynamic variations in measured system load (see col. 6 lines 11 - 49).

As to claim 11, O'Neil-Bright teaches a system according to claim 1, further comprising: a storage device for providing storage resources to the plurality of clients (see col. 6 lines 50 – col. 7 lines 20).

As to claim 12, O'Neil-Bright teaches a system according to claim 1, further comprising: a storage service process for providing at least one volume of storage partitioned across the plurality of servers (see col. 4 lines 1-21).

As to claim 13, O'Neil-Bright teaches a storage area network, comprising: a plurality of servers each configured as a server of claim 1 (see rejection of claim 1).

As to claim 14, O'Neil teaches an information storage server apparatus comprising:

one or more client communication connections to a plurality of client devices (see col.3, lines 17-21 and col.4, lines 1-9);

a server communication connection to at least one other storage server (see col.3, lines 17-21 and col.5, lines 19-32);

a storage device for storing only resource thereon, such that only a first resource is stored on the storage server, and such that other resource are stored on the other storage server (see col.5, lines 19-32 and col.7, lines 30 – 37);

a request handler, for receiving requests for access to the resource via at least one client communication connection (see col. 3 lines 17 – 47 and fig.3), and

determining which of the resource are stored on the storage device, and which resource are stored on the other storage server (see col8, lines 39-53);

a load monitor, for:

determining a local load placed on the storage server by the request handler (see col.7, lines 20-39); receiving information via the server communication connection concerning a load on the other server (see col.7, lines 20-39); and

generating a measure of load from both the local load and the load on the other server; and a client load distributor, responsive to the load monitor, for closing a client communication connection to at least one client device when the measure of load indicates the storage server is over utilized (see col.8, lines 39-53).

O'Neil teaches the invention as mentioned in claim 14 above. O'Neil does not explicitly teach a portion of partitioned resource as recited in claim 14.

However, Bright teaches a system and method for distributing network data storage that includes receiving a data set from a client, defining a device to include a plurality of device portions each on one of the plurality of network servers (see abstract). Moreover, Bright teaches a system for implementing data storage retrieval that includes a plurality of servers each running RAID server application. The servers communicate with clients via a first network and with each other (see Bright paragraphs 0022, 0085-0086 and fig.5, Bright discloses portions of files stored on multiple servers).

It would have been obvious to one of the ordinary skill in the art, at the time of the invention to incorporate the teaching of Bright into those of O'Neil's to make system more efficient by allowing faster retrieval of data using load balancing technique and ensuring that any one server does not become unduly burdened.

As to claim 15, O'Neil-Bright teaches the apparatus of claim 14 additionally wherein the client load distributor causes the at least one client device to direct a subsequent request for access to the partitioned resource to the other server (see O'Neil col.4 lines 1- 21).

As to claim 16, O'Neil-Bright teaches the apparatus of claim 14 wherein the partitioned resource is at least one of a file, a file directory, a data block, a page, a database, or an application program (see O'Neil col.3, lines 17-32).

As to claim17, O'Neil-Bright teaches the apparatus of claim 14 wherein the storage server and the other storage server are addressable by the client as a server group (see O'Neil col.4, lines 10-21).

As to claim18, O'Neil-Bright teaches the apparatus of claim 17 wherein closing of the client communication connection by the client load distribution process is transparent to the client (see O'Neil col.4, lines 10-21).

As to claim19, O'Neil-Bright teaches the apparatus of claim 14 additionally comprising: a routing table, for storing information concerning which portions of the partitioned resource are stored on the storage server and which portions of the partitioned resource are stored on the other storage server (col.1, lines30-41 and col.3, lines 16-32).

As to claim 20, O'Neil-Bright teaches the apparatus of claim 14 wherein the storage server and the other storage server are part of a storage area network (see O'Neil col.5, lines 19-32 and Bright paragraphs 0046 and 0063).

As to claim 21, O'Neil-Bright teaches the apparatus of claim 14 wherein the storage server and the other storage server are equivalent servers such that each equivalent server comprises a request handler, a load monitor and a client load distributor.

As to claim 22, O'Neil teaches a method for handling information by providing a storage server comprising:

- connecting to a plurality of client devices over one or more client communication connections (see col.3, lines 17-21 and col.4, lines 1-9);

- connecting to at least one other storage server over a server communication connection (see col.5, lines 19-32 and col.7, lines 30 – 37);

- storing only a resource on a storage device local to the storage sever, such that only a resource is stored on the storage server, and such that at least one resource is stored on the other storage server (see col.5, lines 19-32 and col.7, lines 30 – 37);

- receiving requests for access to the resource from at least one of the clients, and determining which portions of the requested partitioned resource are stored on the storage device, and determining which of the requested resource are stored on the other storage server (see col8, lines 39-53);

- measuring a load by determining a local load placed on the storage server based on the requests for access to the resource (see col.8, lines 39-53);

receiving information via the server communication connection concerning a load on the other server (see col.8, lines 39-53); and

generating a load measure using both the local load and the load on the other server (see col.8, lines 39-53); and

distributing client load by closing a client communication connection from the storage server to at least one client device when the load measure indicates the storage server is over utilized (see col.8, lines 39-53).

O'Neil teaches the method as mentioned in claim 22 above. O'Neil does not explicitly teach a portion of partitioned resource as recited in claim.

However, Bright teaches a system and method for distributing network data storage that includes receiving a data set from a client, defining a device to include a plurality of device portions each on one of the plurality of network servers (see abstract). Moreover, Bright teaches a system for implementing data storage retrieval that includes a plurality of servers each running RAID server application. The servers communicate with clients via a first network and with each other (see Bright paragraphs 0022, 0085-0086 and fig.5, Bright discloses portions of files stored on multiple servers).

It would have been obvious to one of the ordinary skill in the art, at the time of the invention to incorporate the teaching of Bright into those of O'Neil's to make system more efficient by allowing faster retrieval of data using load balancing technique and ensuring that any one server does not become unduly burdened

As to claim 23, O'Neil-Bright teaches the method of claim 22 wherein the step of distributing client load additionally causes the at least one client device to direct a subsequent request for access to the partitioned resource to the other server (see O'Neil col.4, lines 10-21).

As to claim 24, O'Neil-Bright teaches the method of claim 23 wherein the partitioned resource is at least one of a file, a file directory, a data block, a page, a database, or an application program (see O'Neil col.3, lines 17-32).

As to claim 25, O'Neil-Bright teaches the method of claim 22 wherein the storage server and the other storage server are addressed as a server group by the client (see O'Neil col.4, lines 10-21).

As to claim 26, O'Neil-Bright teaches the method of claim 22 wherein closing the client communication connection by the client load distribution process is transparent to the client (see O'Neil col.4, lines 10-21).

As to claim 27, O'Neil-Bright teaches the method of claim 22 additionally comprising:

storing information in a routing table concerning which portions of the partitioned resource are stored on the storage server and which portions of the partitioned resource are stored on the other storage server (col.1, lines30-41 and col.3, lines 16-32).

As to claim 28, O'Neil-Bright teaches the method of claim 22 wherein the storage server and the other storage server are part of a storage area network (see O'Neil col.5, lines 19-32 and Bright paragraphs 0046 and 0063).

As to claim 29, O'Neil-Bright teaches the method of claim 22 wherein the storage server and the other storage server are equivalent servers such that each perform the steps of request handling, measuring load and distributing client load (see O'Neil col.5, lines 19-32 and col.7, lines 30 – 37 and col.8, lines 39-53).

As to claim 30, O'Neil teaches a tangible, non-transitory, computer readable medium for storing computer executable instructions for providing a storage server function, with the computer executable instructions for:

connecting to a plurality of client devices over one or more client communication connections(see col.3, lines 17-21 and col.4, lines 1-9);;

connecting to at least one other storage server over a server communication connection (see col.3, lines 17-21 and col.5, lines 19-32);

storing only a resource on a storage device local to the storage sever, such that only a first resource is stored on the storage server, and such that at least one other resource is stored on the other storage server(see col.5, lines 19-32 and col.7, lines 30 – 37);

receiving requests for access to the resource from at least one of the clients, and determining which of the requested resource are stored on the storage device(see col. 3 lines 17 – 47 and fig.3), and

determining which of the requested resource are stored on the other storage server (see col.7, lines 20-53);

measuring a load by determining a local load placed on the storage server based on the requests for access to the resource (see col.8, lines 39-53);

O'Neil teaches the non-transitory, computer readable medium for storing computer executable instructions for providing a storage server function, with the computer executable instructions. O'Neil does not explicitly teach a portion of partitioned resource as recited above in claim 30.

However, Bright teaches a system and method for distributing network data storage that includes receiving a data set from a client, defining a device to include a plurality of device portions each on one of the plurality of network servers (see abstract).

Moreover, Bright teaches a system for implementing data storage retrieval that includes a plurality of servers each running RAID server application. The servers communicate with clients via a first network and with each other (see Bright paragraphs 0022, 0085-0086 and fig.5, Bright discloses portions of files stored on multiple servers).

It would have been obvious to one of the ordinary skill in the art, at the time of the invention to incorporate the teaching of Bright into those of O'Neil's to make system more efficient by allowing faster retrieval of data using load balancing technique and ensuring that any one server does not become unduly burdened.

Response to Arguments

Applicant's arguments have been considered but are moot in view of the new ground(s) of rejection.

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SARGON NANO whose telephone number is (571)272-4007. The examiner can normally be reached on M-F 8-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ario Etienne can be reached on (571) 272-4001. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2457

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sargon N Nano/
Examiner, Art Unit 2457

/ARIO ETIENNE/
Supervisory Patent Examiner, Art Unit 2457